



IN THE UNITED STATES PATENT AND TRADEMARK

OFFICE

In re the Application of: **YAMAUCHI, Tsunenori**

Patent No.: **6,838,349**

10/053712

Group Art Unit: **2812**

Issued: **January 4, 2005**

Examiner: **C. W. Lattin**
P.T.O. Confirmation No.: **4240**

For. **SEMICONDUCTOR DEVICE AND METHOD FOR FABRICATING THE SAME**

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.501

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

March 22, 2005

Sir:

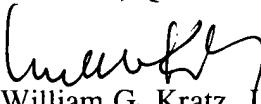
Submitted herewith is a copy of a search report in a European counterpart application dated October 21, 2004 and the cited references.

The cited documents are believed to be pertinent due to citation in the counterpart application. Please place such documents in the file of the above-captioned patent.

In the event any fees are due in connection with this paper, please charge our Deposit Account 01-2340.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP


William G. Kratz, Jr.
Attorney for Applicant
Reg. No. 22,631

WGK/nrp

Atty. Docket No. **020076**
Suite 1000, 1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



23850

PATENT TRADEMARK OFFICE

Enclosures: Information Disclosure Statement PTO-1449
Search Report in European counterpart application dated 10/21/04
References (11)

THIS PAGE IS BLANK



Enclosures: Information Disclosure Statement PTO-1449
Search Report in European counterpart application dated 10/21/04
References (11)

INFORMATION DISCLOSURE CITATION PTO-1449	Atty. Docket No. 020076	Patent No. 6,838.349
	Applicant(s): YAMAUCHI, Tsunenori	
	Issued: January 4, 2005	Group Art Unit: 2812

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Name	Date	Class	Subclass	Filing Date (If appropriate)
_____	AA	6,169,007	Pinter	1-02-01		
_____	AB					
_____	AC					

FOREIGN PATENT DOCUMENTS

	Document No.		Date	Country	Translation (Yes or No)
_____	AD	05-102177 A	04/23/1993	Japan	Abstract only
_____	AE	1 065 728 A2	01/03/2001	EPO	
_____	AF	WO 00/14806	03/16/2000	WIPO	Abstract only
_____	AG	WO 98/26457	06/18/1998	WIPO	Abstract only
_____	AH				

OTHER DOCUMENTS

_____	AI	Koichiro YUKI, et al., "Bandgap and Strain Engineering in SiGeC Heterojunction Bipolar Transistors", Jpn. J. Appl. Phys, Vol. 40 (2001) pp 2633-2636.
_____	AJ	Gary L. PATTON, et al., "Graded-SiGe-Base, Poly-Emitter Heterojunction Bipolar Transistors", IEEE Electron Device Letters, vol. 10, No. 12, December, 1989.
_____	AK	D. Knoll, et al., "Comparison of SiGe and SiGe:C heterojunction bipolar transistors", Thin Solid Films 369 (2000) pp. 342-346.
_____	AL	L. D. Lanzerotti, et al., "Suppression of Boron Outdiffusion in SiGe HBTs by Carbon Incorporation", IEEE, 1996, IEDM 96-249
_____	AM	PATENT ABSTRACTS OF JAPAN, Publication Number 11238741, 08-31-99.
_____	AN	PATENT ABSTRACTS OF JAPAN, Publication Number 08319100, 05-31-96.

7

THIS PAGE IS BLANK

P.B.5818 - Patentlaan 2
2280 HV Rijswijk (ZH)
+31 70 340 2040
TX 31651 epo nl
FAX +31 70 340 3016

Europäisches
Patentamt

Zweigstelle
in Den Haag
Recherche-
abteilung

Eur in
Patent Office

Branch at
The Hague
Search
division

Office européen
des brevets

Département à
La Haye
Division de la
recherche

Fenlon, Christine Lesley
Haseltine Lake,
Imperial House,
15-19 Kingsway
London WC2B 6UD
GRANDE BRETAGNE

HASELTINE LAKE LONDON	
ACKNOWLEDGEMENT	
RECEIVED WITH THANKS	
21 OCT 2004	
ORIG TO	RECORDS
COPY	21.10.04

Zeichen/Ref./Réf. P81120EP00/MR	Anmeldung Nr./Application No./Demande n°./Patent Nr./Patent No./Brevet n°. 02250610.9-2203-
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire FUJITSU LIMITED	

COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well

The following specifications given by the applicant have been approved by the Search Division:

abstract title

The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract:

1

SEARCH DIVISION

21 OCT 2004



REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.

THIS PAGE IS BLANK



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	PATENT ABSTRACTS OF JAPAN vol. 017, no. 453 (E-1417), 19 August 1993 (1993-08-19) -& JP 05 102177 A (HITACHI LTD), 23 April 1993 (1993-04-23) * abstract; figures 2-5 *	1-6, 8, 9, 12-14	H01L29/737 H01L21/331 H01L29/10
Y	US 6 169 007 B1 (PINTER JERALD FRANK) 2 January 2001 (2001-01-02) * column 3, line 13 - column 4, line 44; figures 1-13 *	7, 10, 11	
X	EP 1 065 728 A (MATSUSHITA ELECTRIC IND CO LTD) 3 January 2001 (2001-01-03) * paragraph '0050! - paragraph '0062!; figures 2-20 *	1-6, 8, 13	
X	YUKI K ET AL: "BANDGAP AND STRAIN ENGINEERING IN SIGEC HETEROJUNCTION BIPOLAR TRANSISTORS" JAPANESE JOURNAL OF APPLIED PHYSICS, PUBLICATION OFFICE JAPANESE JOURNAL OF APPLIED PHYSICS. TOKYO, JP, vol. 40, no. 4B, PART 1, April 2001 (2001-04), pages 2633-2636, XP001078188 ISSN: 0021-4922 * abstract; figure 1 *	1-9, 13, 14	TECHNICAL FIELDS SEARCHED (Int.Cl.7) H01L
X	WO 00/14806 A (EHWALD KARL ERNST ; HEINEMANN BERND (DE); KNOLL DIETER (DE); INST HALB) 16 March 2000 (2000-03-16) * claim 14; figures 1-5 *	1, 9, 13	
X	WO 98/26457 A (HEINEMANN BERND ; LIPPERT GUNTHER (DE); INST HALBLEITERPHYSIK GMBH (DE) 18 June 1998 (1998-06-18) * abstract; claim 1 *	1-5	
		-/-	
1	The present search report has been drawn up for all claims		
EPO FORM 1503 03.82 (P04C01)	Place of search	Date of completion of the search	Examiner
	Munich	13 October 2004	Berthold, K
CATEGORY OF CITED DOCUMENTS		T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document	
X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document			

THIS PAGE IS BLANK



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	<p>PATTON G L ET AL: "GRADED-SiGe-BASE, POLY-EMITTER HETEROJUNCTION BIPOLAR TRANSISTORS" IEEE ELECTRON DEVICE LETTERS, IEEE INC. NEW YORK, US, vol. 10, no. 12, 1 December 1989 (1989-12-01), pages 534-536, XP000087805 ISSN: 0741-3106 * abstract; figure 1 *</p> <p>-----</p> <p>KNOLL D ET AL: "Comparison of SiGe and SiGe:C heterojunction bipolar transistors" THIN SOLID FILMS, ELSEVIER-SEQUOIA S.A. LAUSANNE, CH, vol. 369, no. 1-2, July 2000 (2000-07), pages 342-346, XP004200386 ISSN: 0040-6090 * abstract *</p> <p>-----</p> <p>LANZEROTTI L D ET AL: "Suppression of boron outdiffusion in SiGe HBTs by carbon incorporation" ELECTRON DEVICES MEETING, 1996., INTERNATIONAL SAN FRANCISCO, CA, USA 8-11 DEC. 1996, NEW YORK, NY, USA, IEEE, US, 8 December 1996 (1996-12-08), pages 249-252, XP010207710 ISBN: 0-7803-3393-4 * abstract *</p> <p>-----</p> <p>PATENT ABSTRACTS OF JAPAN vol. 1999, no. 13, 30 November 1999 (1999-11-30) & JP 11 238741 A (MATSUSHITA ELECTRON CORP), 31 August 1999 (1999-08-31) * abstract *</p> <p>-----</p> <p>-----</p>	1	
		1-14	
		1-14	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
		12	
1	The present search report has been drawn up for all claims		
EPO FORM 1503 03/82 (P04C01)	Place of search Munich	Date of completion of the search 13 October 2004	Examiner Berthold, K
CATEGORY OF CITED DOCUMENTS		<p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>	
<p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p>			

THIS PAGE IS BLANK



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 09, 30 September 1996 (1996-09-30) & JP 08 139100 A (SONY CORP), 31 May 1996 (1996-05-31) * abstract *-----	12	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
1	Place of search Munich	Date of completion of the search 13 October 2004	Examiner Berthold, K
CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document		T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons & : member of the same patent family, corresponding document	

THIS PAGE IS BLANK

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 02 25 0610

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

13-10-2004

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
JP 05102177	A	23-04-1993	NONE		
US 6169007	B1	02-01-2001	US	6429085 B1	06-08-2002
EP 1065728	A	03-01-2001	EP	1065728 A2	03-01-2001
			JP	3515944 B2	05-04-2004
			JP	2001068479 A	16-03-2001
			US	2002158313 A1	31-10-2002
			US	2002192918 A1	19-12-2002
			US	6492711 B1	10-12-2002
WO 0014806	A	16-03-2000	DE	19842106 A1	09-03-2000
			WO	0014806 A1	16-03-2000
			EP	1112594 A1	04-07-2001
			JP	2002527884 T	27-08-2002
			US	6627972 B1	30-09-2003
WO 9826457	A	18-06-1998	DE	19652423 A1	10-06-1998
			DE	19755979 A1	10-06-1999
			WO	9826457 A1	18-06-1998
			EP	0954880 A1	10-11-1999
			JP	2001505717 T	24-04-2001
			US	2003071277 A1	17-04-2003
			US	2003071278 A1	17-04-2003
			US	2003071281 A1	17-04-2003
JP 11238741	A	31-08-1999	NONE		
JP 08139100	A	31-05-1996	NONE		

THIS PAGE IS BLANK